

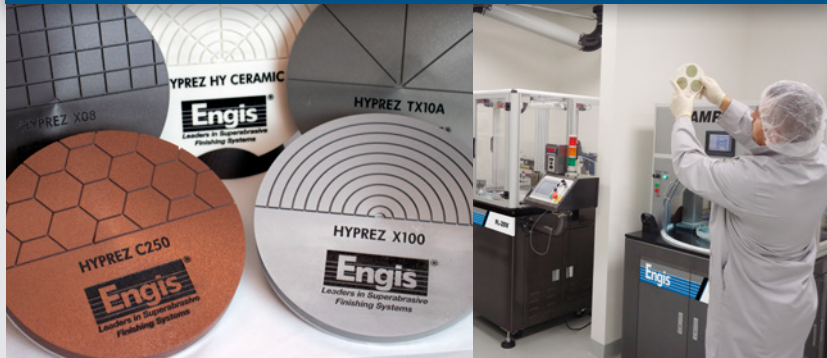
**COMPLETE LAPPING &
POLISHING SOLUTIONS**

- Reduce Costs
- Reduce Processing Time
- Improve Surface Quality
- Improve Flatness

LAPPING SAPPHIRE, ZINC SELENIDE, ZINC SULFIDE, GERMANIUM, CALCIUM FLUORIDE,
MAGNESIUM FLUORIDE, SILICON CARBIDE, BERYLLIUM, YAG AND GALLIUM NITRIDE



Hyprez Lapping & Polishing Complete Systems



ENGIS HYPREZ® ADVANTAGES:

- Engis is in a unique position to offer a full-systems approach to your superfinishing challenges by designing components to work synergistically, optimizing cycles, finish quality and process stability.
- Hyprez slurries, in particular, are characterized by tightly controlled particle size distributions and carriers so as to deliver reproducible results.
- The Engis complete system supports materials across a wide spectrum: metals, ceramics, glass, advanced materials, semiconductors, plastics.

FastLap™ Lapping & Polishing Machines

Precision machines (rotary, etc.) are designed to deliver controlled material removal and high-quality surfaces.

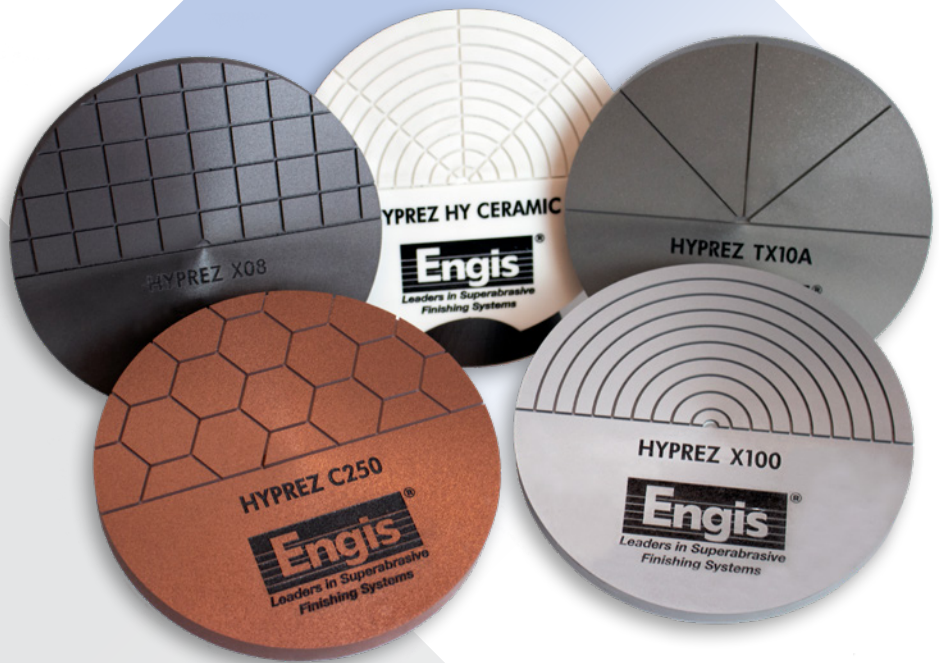
The FastLap Series of Lapping & Polishing Machines are built for versatility and speed. These machines can be customized from a basic tabletop model to a large floor-standing model with advanced process controls. Used in industrial lapping operations as well as in labs and production lines.



Hyprez Lapping Plates

Plates made of composite, metal, or fixed-abrasive materials. Plate selection is guided by the process objective (stock removal, fine finish), the material being lapped and the diamond size/type used in the lapping slurry.

Match plate material to workpiece and abrasive; maintains flatness over time.



Fastlap™ Lapping Plate Facing Device



By incorporating a single point turning tool, as opposed to conditioning rings or similar tools which require operator skill in their accurate positioning, the overall lapping environment is rendered controlled and predictable.

Your Key to Ultra Precision Lapping & Polishing

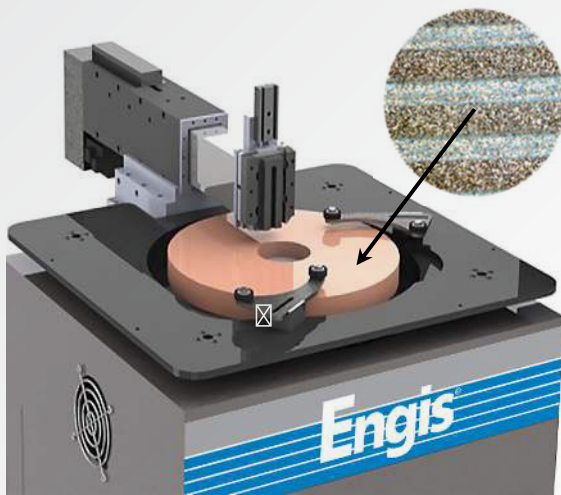
Maintaining the flatness of your lapping plate is critical to a stable process. Generally, this is achieved through the use of diamond plated conditioning rings and requires a high level of operator experience and skill. To reduce this challenge, Engis has engineered a solution that helps take the 'black art' out of lapping; the FastLap Facing Device.

Using a diamond tool bit, this innovative Facing Device removes the top layer of the plate, flat to within microns, when reconditioning is necessary. Then a groove pattern is machined in a second pass. When the Device is not in use, it retracts out of the work zone.

The Facing Device, in combination with the pneumatic pressure heads of the FastLap machine, establishes a process that consistently achieves:

- Accurate plate conditioning
- Controlled surface geometry and texture
- Fast, predictable stock removal

With predictable plate surface topography, groove pattern and controlled velocity and pressure, the entire lapping process becomes easier to manage and your results are more repeatable. Also, this unit is operator-friendly and eliminates the strain of lifting conditioning rings onto the plate.

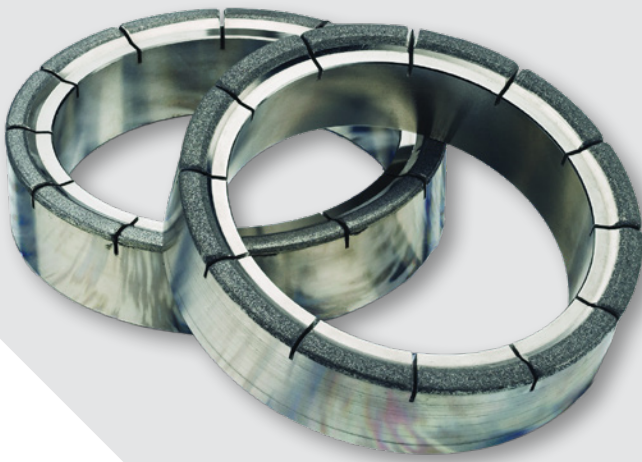




Hyprez Diamond & Colloidal Slurries

Precision-graded diamond slurries, colloidal silica polishing slurries and aluminum oxide powder in lapping oil/carrier formula.

In flat lapping & polishing applications, Engis slurries achieve tight surface finish and flatness control.



Reconditioning Composite Lap Plates

Conditioning Rings—removes previous layer of charged diamond, presenting a new face to be charged with fresh particles. They can also be used to bring the lapping plate back into its original flatness and parallelism.



Hyprez Diamond Compounds

Diamond compounds in paste/gel form with oil-based or water-based carriers, for different hardnesses and polishing steps.



Hyprez Polishing Pads & Cloths

We offer a full selection of pads and cloths customized to the type of optics being polished and are available in a variety of configurations to suit your needs.

Use on final polishing steps, CMP-like finishing, optics and semiconductors.



World Leader in Superabrasive Finishing Systems

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